USING δ^{15}N OF CHIRONOMIDAE TO HELP ASSESS CONDITION AND STRESSORS IN EPA'S NATIONAL AQUATIC RESOURCE SURVEYS.

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As interest in continental-scale ecology increases to address large-scale ecological problems, ecologists need indicators that can be collected quickly at many sites across large areas. We explore the utility of δ^{15}N from basal food chain organisms to provide nitrogen source and processing information within EPA's National Aquatic Resource Surveys for lakes, rivers and streams. While EPA measures many parameters during one-day site visits, data on processes such as denitrification cannot be measured. *Chironomidae* δ^{15}N values could help classify water bodies based on likely sources or processes that affect nitrogen. While chironomid δ^{15}N values varied from -2 to 20 ‰ in lakes, and rivers/streams, river/stream chironomid δ^{15}N were higher than lake chironomid δ^{15}N (median = 7.6 ‰ vs. 4.8 ‰, respectively), indicating that nitrogen found in river/stream chironomids was more processed than nitrogen found in lake chironomids. For both, chironomid δ^{15}N increased with % Agriculture and nitrogen loading, and decreased as precipitation increased. Landscape predictors explained more variance than reach, lake, or food web attributes. Chironomid δ^{15}N values appear promising to indicate landscape nitrogen processing in national water quality monitoring efforts.